

### GTR Module

### Silicon N Channel IGBT

### High Power Switching Applications

### Motor Control Applications

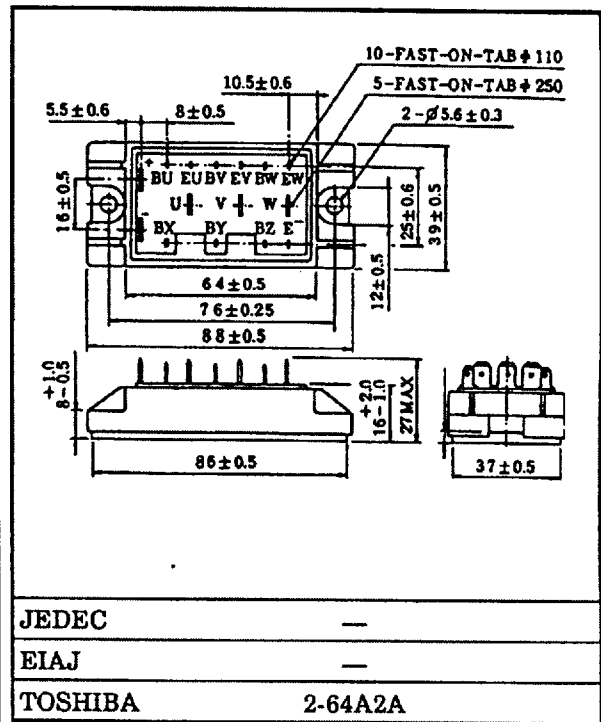
#### Features

- 6 IGBTs are built into 1 package
- High speed:  $t_f = 0.35\mu\text{s}$  (Max.) ( $I_C = 15\text{A}$ )  
 $t_{rr} = 0.15\mu\text{s}$  (Max.) ( $I_C = 15\text{A}$ )
- Low saturation voltage:  $V_{CE(sat)} = 3.5\text{V}$  (Max.) ( $I_F = 15\text{A}$ )
- Enhancement mode
- The electrodes are isolated from case

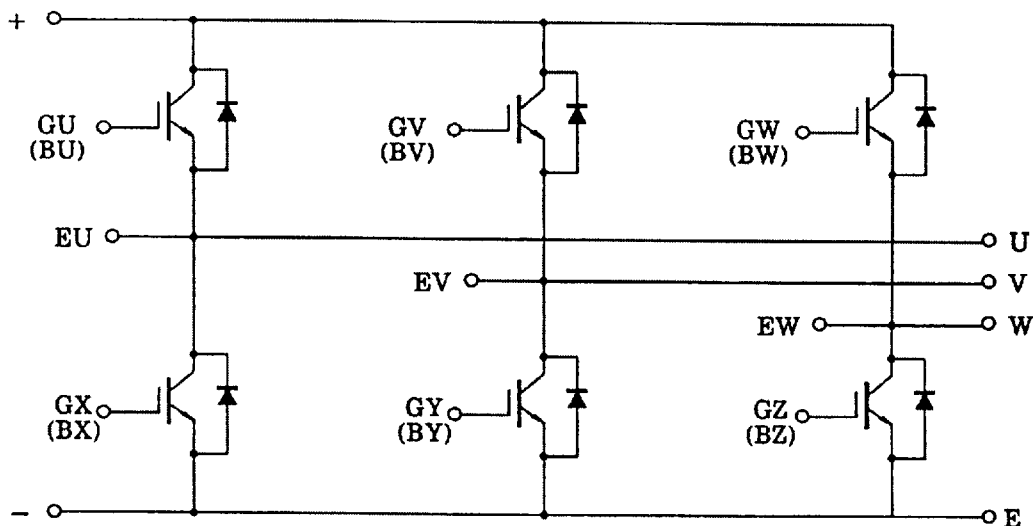
#### Maximum Ratings ( $T_c = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CES}$	600	V
Gate-Emitter Voltage	$V_{GES}$	$\pm 20$	V
Collector Current	DC	$I_C$	15
	1ms	$I_{CP}$	30
Forward Current	DC	$I_F$	15
	1ms	$I_{FM}$	30
Collector Power Dissipation	$P_C$	80	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40 ~ 125	$^\circ\text{C}$
Isolation Voltage	$V_{isol}$	2500 (AC 1 Minute)	V
Screw Torque	—	3	N ¥ m

Unit in mm

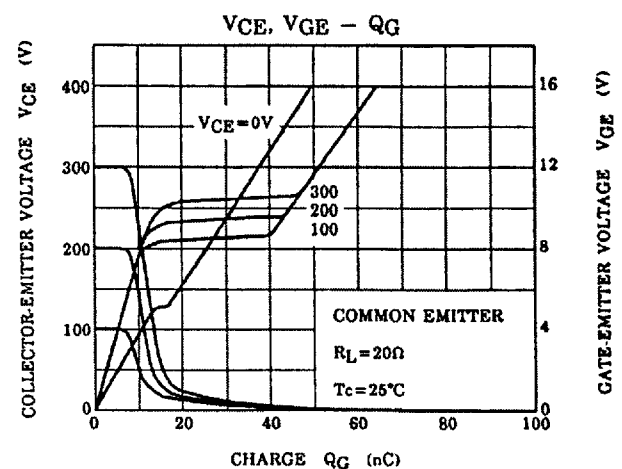
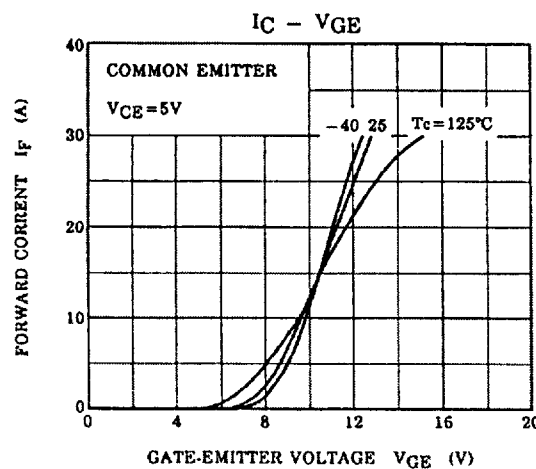
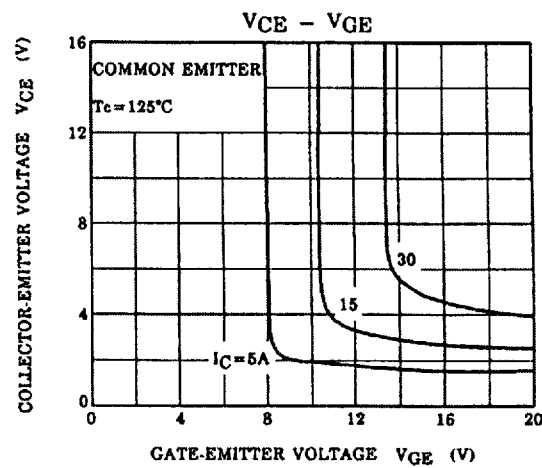
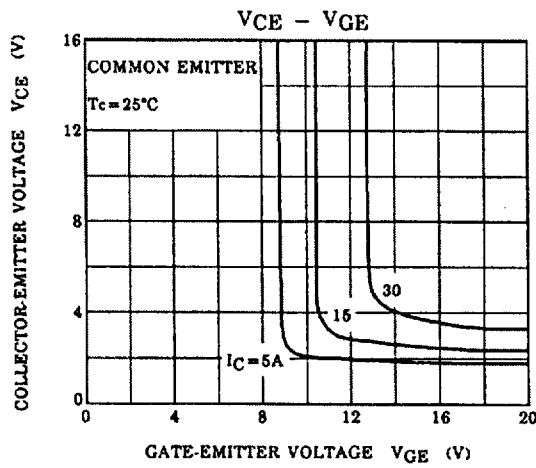
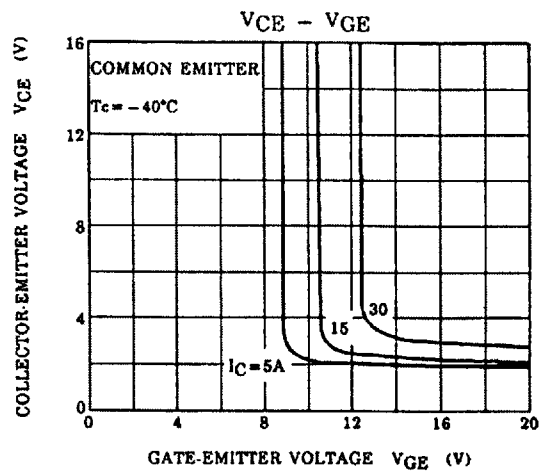
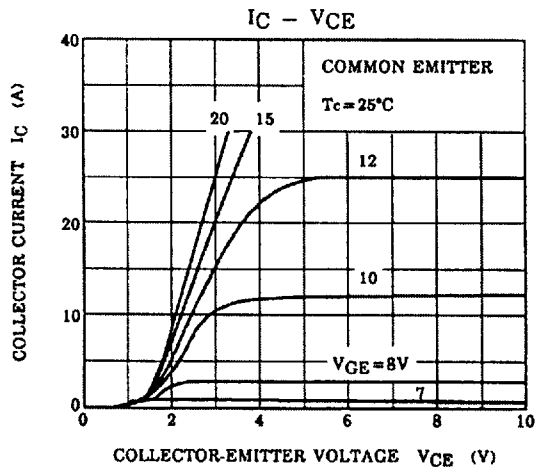


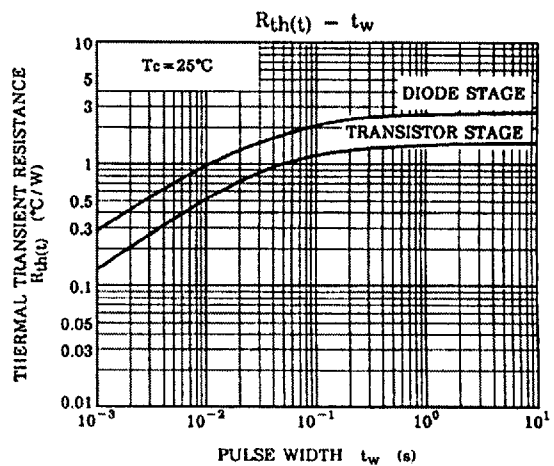
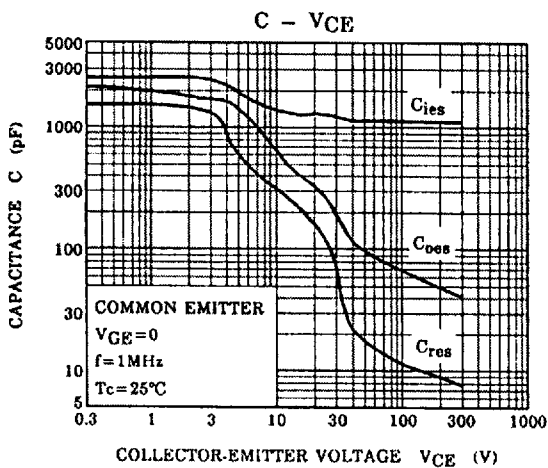
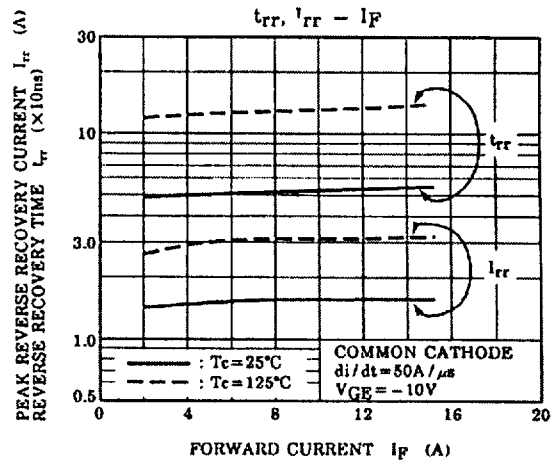
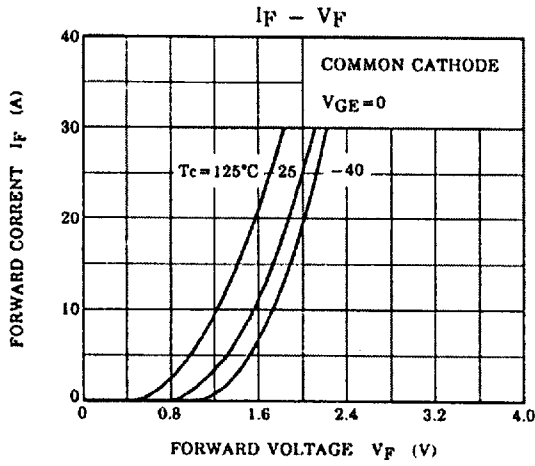
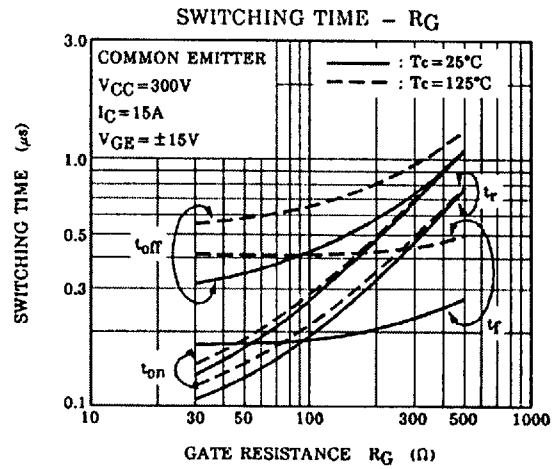
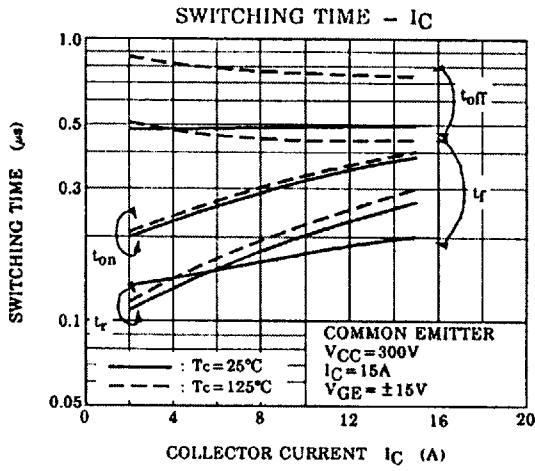
Equivalent Circuit

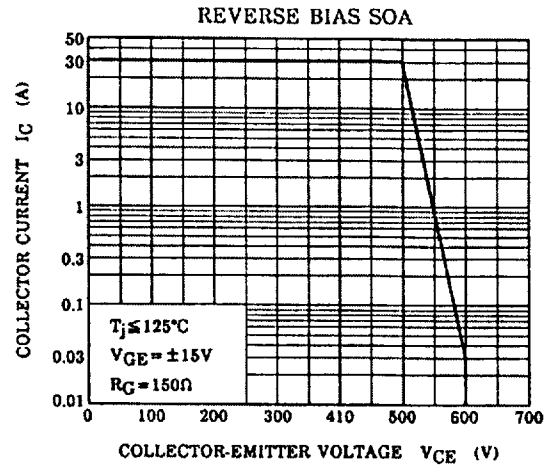
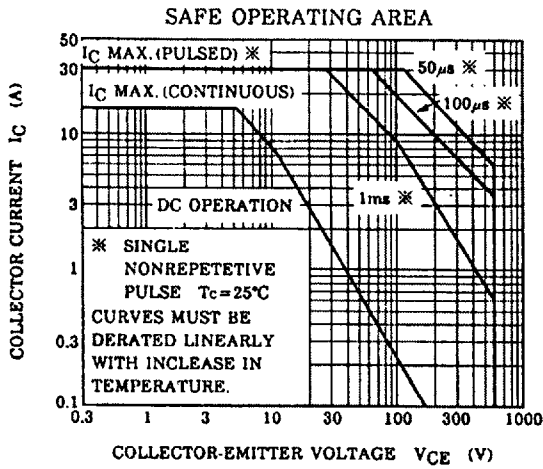


Electrical Characteristics (Tc = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	$I_{GES}$	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	$\pm 500$	nA
Collector Cut-off Current	$I_{CES}$	$V_{CE} = 600V, V_{GE} = 0$	—	—	1.0	mA
Collector-Emitter Breakdown Voltage	$V_{(BR) CES}$	$I_C = 10mA, V_{GE} = 0$	600	—	—	V
Gate-Emitter Cut-off Voltage	$V_{GE (OFF)}$	$I_C = 15mA, V_{CE} = 5V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage	$V_{CE (sat)}$	$I_C = 15A, V_{GE} = 15V$	—	2.7	3.5	V
Input Capacitance	$C_{ies}$	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	1400	—	pF
Switching Time	Rise Time		—	0.30	0.60	μs
	Turn-on Time		—	0.40	0.80	
	Fall Time		—	0.18	0.35	
	Turn-off Time		—	0.60	1.00	
Forward Voltage	$V_F$	$I_F = 15A, V_{GE} = 0$	—	2.0	2.7	V
Reverse Recovery Time	$t_{rr}$	$I_F = 15A, V_{GE} = -10V, di/dt = 50A/\mu s$	—	0.08	0.15	μs
Thermal Resistance	$R_{th (j-c)}$	Transistor	—	—	1.56	°C/W
		Diode	—	—	2.80	







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